STATE OF MISSOURI
Mel Carnahan, Governor • David A. Shorr, Director
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
P.O. Box 176 Jefferson City, MO 65102-0176

MEMORANDUM

SEND
1. DIRECTLY
2. AIL CARE
3. POLICY NOTEBOOK

DATE: July 8, 1996

TO: Regional Offices

THRU: Randy Raymond, Deputy Director
Air Pollution Control Program

THRU: Steve Feeler, Acting Enforcement Section Chief
Air Pollution Control Program

THRU: Mike Stansfield, Acting Operating Permit Unit Chief
Air Pollution Control Program

FROM: Scott Honig, Environmental Engineer SH 7/9
Air Pollution Control Program

SUBJECT: Air Curtain Destructor

Question: When is a Part 70 operating permit required for air curtain destructor?

Air curtain destructors, also called trench combustors, forcefully project a curtain of air across a pit in which open burning occurs. Air curtain destructors are intended to increase combustion efficiency while reducing smoke and Particulate Matter emissions. They can be used to dispose of untreated wood waste for which there is no other feasible means of disposal. A pit is built in which untreated wood waste is placed. And the air curtain is directed diagonally downward across the pit. The introduction of the air to the pit increases the temperature of the fire while deceasing smoke and particulate matter emissions. Time to burn the same amount of material is decreased with the introduction of the air curtain destructor. The correct operation of the air curtain destructor can reduce the emissions of incomplete combustion products. This memo only deals with air curtain destructors used independently of any other emission source.

Construction permits are not currently required for Air Curtain Destructors. Each regional office has the responsibility of issuing open burning permits to these operations. Only wood waste, i.e., trees, logs, and large brush should be burned in the pit. Wood that has been treated, coated, or impregnated with any chemicals is not permitted to be burned. The amount of wood waste which would have to be burned before a construction permit would be required equals over 6,073 tons per year. A limitation on the amount of wood waste that can be disposed of

with an air curtain destructor should be placed in any open burning permit if in the opinion of the regional office it is needed either to remain out of the operating permit program or to protect the environment. A construction permit would be required if over 6,073 tons per year of wood waste from land clearing operations is disposed of with an air curtain destructor.

Part 70 operating permits are required if the potential emissions for the installation is greater than 100 tons per year. A Part 70 operating permit would be required if over 40,485 tons per year of wood waste from land clearing operations is disposed of with an air curtain destructor. A Basic State operating permit would be required if over 6,073 tons per year of wood waste is disposed of with an air curtain destructor. The totals stated above are for an air curtain destructor operating by itself without any other emission sources.

Example: How much wood can be burned to remain below the 100 tons per year Part 70 trigger level?

Emission Factors : AP- 42 Section 2.1, "Refuse Combustion" Table 2.1-12 Uncontrolled Emission Factors for Refuse Combustors other than Municipal Waste Trench Combustors - Wood: SCC 5-01-005-10, 5-03-001-06

Pollutants	Emission Factors (lbs per ton)	
Particulate	13	
PM_{10}	4.94	← limiting factor
CO	ND	
VOC	ND	
NO_X	4	
SO_X	0.10	

ND - no data

Basis: 100 Tons PM_{10} per year, only emission source

$$100\frac{Tons\ PM_{10}}{year} = X\frac{Ton}{year} * 4.94\frac{lbs}{Ton} * \frac{1\ Ton}{2000\ lbs}$$

$$X = 40,485\frac{Tons}{year}$$

Basis: 15 Tons PM_{10} per year

$$15\frac{Tons\ PM_{10}}{year} = X\frac{Ton}{year} * 4.94\frac{lbs}{Ton} * \frac{1\ Ton}{2000\ lbs}$$

$$X = 6,073\frac{Tons}{year}$$